

**Amendments to the Claims:**

This listing of claims will replace all versions and listings of claims in the application:

**Listing of Claims:**

1. – 28. (Canceled)

29. (currently amended) A circulating fluidized bed boiler comprising:

a fire box in which solid fuel is combusted in the presence of oxygen to generate flue gases containing heated solids;

a fluidized bed containing the heated solids fluidized by a fluidization gas, and

an oxygen transport membrane being disposed in the fluidized bed, wherein the heated solids sufficiently heat the oxygen transport membrane such that the oxygen transport membrane extracts oxygen from pressurized air provided thereto for combustion in the firebox. and provides the oxygen to the fluidized bed.

30. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the fluidization gas is CO<sub>2</sub>.

31. (canceled)

32. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, further includes a fluid line for providing a ~~combined combustion gas that comprises the~~ fluidization gas and the extracted oxygen from the fluidized bed to a the firebox.

33. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, further includes a fluid pressurizing device that pressurizes the air provided to the oxygen transport membrane.

34. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the oxygen transport membrane is supported within the ~~fluidized~~ heated solids in the fluidized bed.

35. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the oxygen transport membrane is ~~supported~~disposed above the ~~fluidized~~heated solids in the fluidized bed.

36. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the fluidized bed is disposed within a ~~a~~the firebox.

37. (currently amended) The circulating fluidized bed boiler of claim ~~1~~36, wherein the fluidized bed is open to the firebox for receiving descending heated solids in the firebox.

38. (currently amended) The circulating fluidized bed boiler of claim ~~1~~37, wherein the fluidized bed extends along a portion of an inner wall of the firebox.

39. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the fluidized bed is external to a ~~a~~the firebox.

40. (canceled)

41. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the oxygen transport membrane includes long tubes supported by intermediate plates.

42. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the oxygen transport membrane includes short tubes with intermediate chambers.

43. (currently amended) The circulating fluidized bed boiler of claim ~~1~~29, wherein the oxygen transport membrane includes concentric tubes, an inner tube of which serves as a support for a tube of outer membrane.

44. (previously presented) The circulating fluidized bed boiler of claim 43, wherein a space is provided between the concentric tubes.

45. (previously presented) The circulating fluidized bed boiler of claim 44, wherein the air flows in counter-current in the space between the tubes.

46. (canceled)

47. (canceled)

48. (currently amended) The circulating fluidized bed boiler of claim ~~29, 47~~, wherein the oxygen transport membrane is heated to a high temperature is of approximately greater than 700 degrees Celsius.

49. (currently amended) A circulating fluidized bed boiler comprising:  
a fire box in which solid fuel is combusted in the presence of oxygen; and  
an oxygen transport membrane being disposed ~~in thermal communication with~~ such that the firebox ~~to provide~~ provides sufficient heat for the oxygen transport membrane wherein the oxygen transport membrane extracts oxygen from pressurized air provided thereto ~~and provides the oxygen to~~ for combustion in the firebox.

50. (currently amended) The boiler of claim ~~149~~, further includes a fluid pressurizing device that pressurizes the air provided to the oxygen transport membrane.

51. (currently amended) The boiler of claim ~~149~~, wherein the oxygen transport membrane is disposed on the inner periphery of the lower portion of the firebox.

52. (currently amended) The boiler of claim ~~149~~, wherein the oxygen transport membrane is disposed on a hearth of the firebox.

53. (canceled)

54. (currently amended) The boiler of claim ~~149~~, wherein the oxygen transport membrane includes long tubes supported by intermediate plates.

55. (currently amended) The boiler of claim ~~14~~9, wherein the oxygen transport membrane includes short tubes with intermediate chambers.

56. (currently amended) The boiler of claim ~~14~~9, wherein the oxygen transport membrane includes concentric tubes, an inner tube of which serves as a support for a tube of outer membrane.

57. (currently amended) The boiler of claim ~~14~~9, wherein the oxygen transport membrane comprises a plurality of oxygen transport membranes.

58. (canceled)

59. (new) The boiler of claim 52, wherein the oxygen transport membrane includes tubes disposed horizontally on the hearth of the boiler.

60. (new) The boiler of claim 49, wherein the oxygen transport membrane is heated to a temperature of approximately greater than 700 degrees Celsius.

61. (new) The circulating fluidized bed boiler of claim 29, wherein an oxygen transport membrane is immersed within the heated solids in the fluidized bed and disposed above the heated solids of the fluidized bed.

62. (new) The circulating fluidized bed boiler of claim 29, further including a separator that separates the heated solids from the flue gas to provide at least a portion of the heated solids to the fluidized bed.

63. (new) The circulating fluidized bed boiler of claim 62, wherein at least a portion of the separated heated solids are provided from the separator to the firebox.

64. (new) The circulating fluidized bed boiler of claim 29, wherein at least a portion of the heated solids of the fluidized bed are provided to the firebox.